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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,310	09/16/2005	Naoyuki Takano	2185-0773PUS1	3487

2292 7590 01/18/2007  
BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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VALENROD, YEVGENY

ART UNIT	PAPER NUMBER
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1621

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/18/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/18/2007.

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mailroom@bskb.com

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<b>Office Action Summary</b>	<b>Application No.</b> 10/549,310	<b>Applicant(s)</b> TAKANO ET AL.	
	<b>Examiner</b> Yevgeny Valenrod	<b>Art Unit</b> 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7,9,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 8 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/25/06; 9/16/05</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 7, 9, 10, 12 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Barton et al. (*Journal of the Chemical Society, Chemical Communications*, **1981**, 23, 1232-1233).

Barton et al disclose a method of converting a 1,2 diol into two carbonyl functionalities (Table on page 1232 lists diols used and products obtained). The process they describe includes the same reagents as claimed by the applicant, more specifically: triphenylbismuth (trivalent busmith), N-bromosuccinimide (source of bromine) and potassium carbonate (base) (typical procedure is described on page 1233 first column, first paragraph after the scheme). N-bromosuccinamide is a source of bromine, but is also a source of amide nitrogen. Succinamide is inherently formed in the reaction process and is therefore present in the reaction mixture. Barton et al. meet all the limitations of claims 1-3, 6, 7, 9, 10, 12 and 13.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barton et al. (*Journal of the Chemical Society, Chemical Communications*, **1981**, 23, 1232-1233).

Instant claims 4 and 5 are directed to a process described in claim one where part of the diol, bismuth and base are premixed.

#### *Scope of prior art*

Barton et al disclose a method of converting a 1,2 diol into two carbonyl functionalities (Table on page 1232 lists diols used and products obtained). The process they describe includes the same reagents as claimed by the applicant, more specifically: triphenylbismuth (trivalent busmith), N-bromosuccinimide (source of bromine) and potassium carbonate (base) (typical procedure is described on page 1233 first column, first paragraph after the scheme). N-bromosuccinamide is a source of bromine, but is also a source of amide nitrogen.

#### *Ascertaining the difference*

Barton et al. add N-bromosuccinamide to premixed solution of the diol, bismuth and potassium carbonate. Barton et al. do not teach premixing only part of the diol and adding the remainder together with the bromine source.

### *Obviousness*

Altering the rate and order with which the reagents are added is routinely practiced in the art in order to optimize the conditions of the process to obtain the desired results. Applicant has failed shown unexpected results in using the staged addition of the diol vs. having the diol present in the premixed solution as described by Barton et al. The two-part addition of the diol therefore does not represent a limitation that patentably distinguishes the claimed process from the one described in prior art.

### *Claim Objection*

Claims 8 and 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The specific compound of formula (4) renders the claim patentable. Prior art search has failed to uncover references that suggest using the bismuth oxidation process described in claim 1 with the diol of structure 4. There are also no references suggesting the use of inorganic bromine in the process described by Barton.


### *Conclusion*


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yevgeny Valenrod whose telephone number is 571-272-9049. The examiner can normally be reached on 8:30am-5:00pm M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Yevgeny Valenrod  
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